4 *A ſoft ſubſtance, depending from the Upper Part of the* Uterus, *into which the foreſaid Veſſels terminate.*

5 *Two Tubercles, ſeated near the Beginnings of the* Tubæ, *to which the* Placenta *adher'd.*

B B *The* Vagina *laid open.*

6. 6. *The two* Labia *of the* Collum minus.

7. 7. *ſeveral ſmall Glands plac'd on the Upper* Labium.

8. *The Courſe of the* Rugæ *on the upper ſide of the* Vagina.

9. 9. *Their direction on the under ſide of that part.*

10. 10. *Two Orbicular ſubſtances, near the Orifice of the* Meatus Urinarius.

III. *An Account of an Experiment made before the* Royal Society *at* Greſham-Colledge, *touching the Extraordinary Eliſtricity of Glaſs, produceable on a ſmart Attrition of it; with a Continuation of Experiments on the ſame Subject, and other* Phenomena. *By Mr* Fra. Hauksbee, *F. R. S.*

I Took a Hollow Tube of fine Flint Glaſs, about an Inch Diameter and 30 in Length, which having rubb'd pretty ſmartly with Paper in my Hand, till it had acquir'd ſome degree of Heat; it was then held towards ſome pieces of Leaf Braſs, which ſo ſoon as its *Effluvium* had reacht, became ſuddenly in Motion, flying towards the Tube, even at 9 or 10 Inches diſtance; and it ſeem'd that the hotter the Tube was made by Rubbing, the farther it would Attract, but that it would do ſo to any Degree of Heat, I dare not determine. And what farther obſervable was, That ſometimes the Bodies Attracted would adhere to the Tube, and there remain quiet. Sometimes would be thrown violently from it to good Diſtances: Sometimes in their Motions towards, and ſometimes even touching it, they would ſuddenly be Repell'd back to the diſtance of 4 or 5 Inches, repeating the ſame ſeveral times with great Velocity in a very ſurprizing manner. Sometimes the Bodies would move but ſlowly towards the Tube, ſometimes remain a ſmall time ſuſpended between the Glaſs and the Table on which the Braſs Leaf was laid; and ſometimes ſeem to ſlide along the ſides of it without touching. All which *Phenomena*, altho they do not happen at every Tryal exactly as I have here deliver'd them, yet I have ſometimes ſeen them, and in a great meaſure at all times, are very agreeable to this account, notwithſtanding the Force and Vigour of the *Effluvium* is ſometimes leſs than what at other times I have found it. The Reaſon of which ſeems to me to proceed from the Different Temperatures of the Air at the time the Experiments are made; for when it happens that abundance of Humid Particles (as ſometimes there are) are ſwimming in the Air, there is no difficulty to believe, but the Reſiſtance of ſuch Particles may mightily impede the Force and Extent of the *Effluvium*: Or, which is much to the ſame purpoſe, ſuddenly Condenſe on the warm Tube, thereby Hindring or Choaking the Paſſages of the *Effluvia*. For I find Moiſtneſs at all times an utter Enemy to Attempts of this nature; beſides, the quality of the *Effluvium* ſeems to be ſuch, that I could not (in an Experiment lately made) with all my endeavours, cauſe it to affect one of the premention'd Bodies thro a piece of fine Muſlin, notwithſtanding it was held very near it, and at the ſame time would Attract or give Motion to the ſame Body at three or four times that diſtance, the Muſlin not interpoſing. Moreover, I cannot tell but the Coldneſs of the Air at the ſame time may Concur; for when this Experiment was firſt made it was Summer time, and Dry Weather; and then it ſeem'd to me to ſucceed ſomething better than it has done

done of late: Yet the leaſt of its Performances under the forementioned Inconveniencies is very notable. But to proceed: When the Glaſs became hotteſt by the greateſt Attrition, it did then ſend forth ſuch quantity of *Effluvia*, not only performing the Effects beforementioned with ſeemingly greater Vigour, but being nearly apply'd to the Face, or any tender part, might be ſencibly felt, as if the Part was puſht with the points of a conſiderable number of weak Hairs. In this place I think it will not be amiſs to take notice, That, conſidering the Vigorous Action of the *Effluvum*, I thought it would not be unneceſſary to attempt a diſcovery of the figure of its Motion, by Approaching the Affricated Tube to the flame of a Candle, Smoak, Steem, Duſt, and to the Surfaces of Liquids; which I did without any manner of ſucceſs: And which I wholly attribute to the reaſon before given, of the Humid *Effluvia* ſuddenly Condenſing on the Warm Glaſs; ſo the Oleagenous Quality of the Flame and Smoak, the Moiſtneſs of the Steam, the Smalneſs of the Duſt, or the *Effluvia* of the Liquids, would immediately adhere to all parts of the Affricated Tube, as it was approacht within their Spheres, preventing the Operation of its *Effluvia*, which then ſeem'd to be ſtopt, or retir'd within itſelf; and requir'd a new Attrition to give it vent.

What next occurr'd in this Experiment was, That upon exhauſting the Air from within the Tube by the Pump, then altho the like Attrition or greater was given it than before, yet very little of the *Affluvium* could be diſcoverable, by any motion or diſturbance given the Leaf Braſs, notwithſtanding it was held within a quarter of the diſtance, at which it had been attracted before. After this had been continu'd for ſome time with little ſucceſs: I ſay with little ſucceſs, Becauſe, ſometimes ſmall parts of the Leaf Braſs, when the Tube was held near, and at the ſame time very warm, would have a Motion given them; but without Compariſon to what it did when the Experiment was made with it unexhauſted of its Air. Beſides, I doubt not but ſome ſmall quantity of Air might be left in the Tube, and ſo the Attraction to continue in proportion to the Quantity of the remaining Air. Or the Heat that is produc'd upon the ſmart Attrition of it, may as well in this (I think) as in other Experiments, ſupply the Effect and Space of ſuch a quantity of that Element: Upon letting in the Air again, it was worth taking notice, That before any new attrition was given the Tube, or was remov'd from the Poſition and Diſtance it was held in when *in Vacuo*, that ſeveral of the premention'd Bodies at Reſt, (as to ſence) began ſuddenly to move, and were ſome of them attracted to the Tube, which, upon a freſh attrition, its Electrical Quality recover'd as vigorous as at firſt. Thus far the firſt part of the Experiment.

Now the Attrition of the Tube being made in the dark, it was very obſervable, that when the Glaſs became warm, a Light would continually follow the Motion of the Hand, backward and forward; and at the ſame time, if another Hand was held near the Tube, a Light would be ſeen to break from it with noiſe, much like that of a Green Leaf in the Fire, for ſmartneſs, but nothing ſo loud: Altho when the Experiment has been very ſilently made, I have heard ſeveral Cracks at 7 or 8 feet diſtance, or more; if any thing elſe as well as the Hand was brought near it, a Light would fix upon it, notwithſtanding it touched it not, as I have try'd with Gold, Silver, Braſs, Ivory, Wood, *&c.* giving much the ſame appearance as the Hand. But after the Glaſs came to be exhauſted of its Air, then upon the firſt Attrition of it, a much larger did enſue; but the quality of giving a Light to a Body approacht near it, ſeem'd to be quite loſt. I conclude this Experiment with taking notice,

tice, That the Light produc'd upon the Attrition of the Exhauſted Tube, appear'd wholly within it; and that which was diſcover'd upon the Affrication of it unexhauſted, ſeem'd to be altogether on its outſide.

Poſtſcript.

SInce this Account was wrote, I procur'd a ſolid Tube, about the bigneſs and of the ſame Metal with the other; but upon tryal of it find no great Difference in its Operations, in compariſon with the other, only its *Effluvium* ſeem'd to continue a little longer, but attracts not at a greater diſtance than the other that I can diſcover. With this new Tube I made the following Experiment, I took a little Lamp-black, and having dry'd it on a Paper before the Fire, and the Tube being rubb'd till it was warm, then being held near the Lamp black, it was not without pleaſure to behold the Brisk Agitation of a number of the Little Bodies, ſeeming promiſcuouſly Aſcending and Deſcending with great velocity: And it was admirable to ſee, that Bodies ſo light *in ſpecie*, which by their own Gravity falling on Paper would make no ſenceable noiſe, yet the ſame return'd with ſuch force from the Tube, that their ſtriking the Paper was very audible.

A Continuation of the Experiments on the Attrition of Glaſs.

I Procur'd a Glaſs nearly Cylindrical, of the Length and Diameter about ſeven Inches each, whoſe motion was given by a Machine of a new Contrivance; its Axis lying parallel to the Horizon, which in like Experiments heretofore made, was Diametrically oppoſite to it. With this new Method, after the Cylinder was exhauſted of its Contain'd Air, and the Motion made by the Wheel, it ſucceeded in reſpect to the Light produc'd upon the Attrition of it, as in the Experiments formerly mention'd. But when all its Air had return'd into it, and the Attrition and Motion continu'd as at firſt, it was not a little ſurprizing to behold from the point of ones Finger to the Glaſs, a vigorous Light, which began (as has been obſerv'd) at the Finger firſt; and ſeem'd to Gravitate on it, being ſencibly to be felt there, notwithſtanding the Moving Body was not toucht with it by near ½ an Inch: This Light ſeem'd to iſſue from the Glaſs with a conſiderable noiſe, (not much unlike that of Wheezing, but ſmarter) and was eaſily diſtinguiſhable from that made by the Operation of the Engine, which was not a ſmall one. Here obſerving the Vigorouſneſs of the Light, and the Noiſe that attended the near touching Finger, when the Experiment was made in the Dark, I was willing to ſatisfie my ſelf whether it would Exhibit any *Phenomenon* by Day light; accordingly, one day in the Afternoon between 2 and 3 a Clock, in a very light Room, I found that immediately after the Attrition was made on the Moving Glaſs, and the Finger approacht as before, a pure Purple Light became very viſible to extend itſelf from the Finger to the Cylinder, and was accompany'd with the like premention'd Noiſe. This Experiment I have

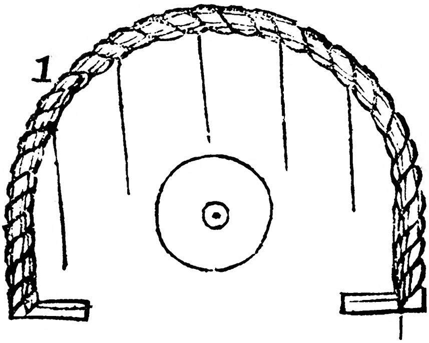
have repeated ſeveral times ſince at different hours, with the like ſucceſs: It is always made with Glaſs unexhauſted of its Air. To proceed. As to the Electricity of this Body upon ſuch a Motion and Attrition given it as uſual, I do not find that it exceeds in that quality what already I have related in former Experiments. I then took a piece of fine Muſlin, which was ſow'd to two Wires bent Archwiſe, that it might ſurround the upper ſurface of the Glaſs, almoſt at four Inches diſtance from it: The Muſlin I made as ragged (by breaking the Threads of it every where) as I could, (for I find that Small and Light Bodies are moſt apt to be affected by the *Effluvium* of Glaſs) then the Motion and Attrition being given, it was pleaſing enough to ſee a Multitude of ſmall Sparks of Light every where on the ends of the torn Threads, which reſembled ſo many little Stars obſervable in a good Telleſcope in the *Via Lactea*; and the whole was attended with ſuch a whiteneſs, by the little Light proceeding from them, as in that part of the Hemiſphere taken notice of, by thoſe who behold it with the naked Eye.

After that I tryed, whether the Addition of Heat, by placing a red hot Iron juſt under the Moving Glaſs, would advance any thing the appearance of Light, which I found without the Attrition of my Hand would do nothing, and with it no more, that I could diſcover, than if it had been abſent; both, with the Glaſs exhauſted of its Air and without.

Now what farther I have to add, occurr'd from obſerving always that Light Bodies, approach'd near any part of the affricated Cylinder, would ſeemingly be equally Attracted, or Gravitate; ſo that I contrived a Semicircle of Wire, which I could faſten at a conſtant diſtance, environing the upper Surface of the Glaſs at 4 or 5 Inches from it. This Wire had twiſted round it ſome Pack-Thread, whereby I could with Eaſe hang

the

the Threads at pretty nearly equal diſtances; the lower ends of which reaching within leſs than an Inch of the Glaſs, when held approaching the Center of it, but appear'd, when at liberty, as in Figure the 1ſt.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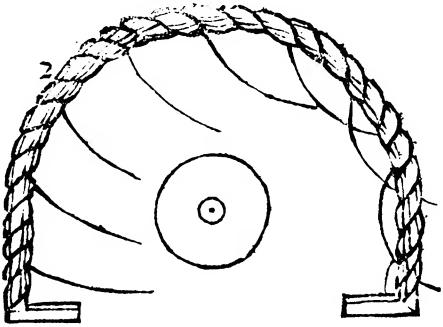
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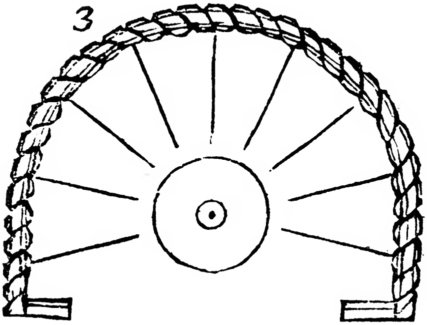
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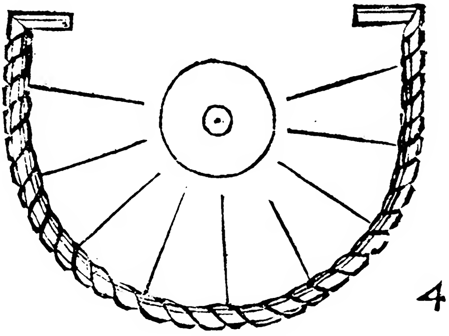
4

And when the Cylinder was pretty ſwiftly turn'd about, thoſe Threads would appear by the agitated Air, as in Fig. the 2d. But when on the lower part of the Glaſs was applyed my hand, the Threads would then repreſent a Form like Fig. the 3d. And from all parts ſeem to Gravitate, or were attracted in a direct Line to the Center of the moving Body, ſuffering no Inconvenience or Diſorder of Poſture by the Wind occaſioned by the Rapidity of the motion; and I could by ſhifting

ing the Attrition, draw them in a Line towards either end of the Cylinder; yet ſtill pointing to the Axis of it. And if the Wire with the Threads be revers'd, as I have tryed ſince, that is, encompaſſing the under part of the Cylinder, as before the upper, it anſwer'd exactly the ſame as the other; the Threads all pointing to the Axis of it: See Fig. the 4th. I have likewiſe given a Motion to the ſame Glaſs in a perpendicular Poſture, by which means I had the opportunity of placing a Hoop-Wire Horozontally, with Threads as before, and left only one ſmall part expos'd for the touch of my Fingers between them; yet the Threads upon the Motion and Attrition given the Cylinder, elevated themſelves from their hanging Poſture, making all round an Horozontal Plain, directing their looſe ends to the Axis as in the other. Now how far this Experiment may ſerve to explain the Nature of Electricity, Magnatiſm, or Gravatation of Bodies, is beyond my Sphere to determine; but with all Humility ſubmit it to thoſe Learned Gentlemen of this Honourable Society, who have already treated on thoſe Subjects.